

*Extract from the editorial in Pramana:*

... Serious research in the physical sciences may be said to have started in India at the turn of the century. It was during the twenties and thirties, the most remarkable years for the *quality* of research done in the country, that a number of Indian scientific journals came into being through the efforts of the great names that dominated Indian science at that time. Since then there has been an enormous increase in the *quantity* of research work done in India. However, the fashionable notion that it is more prestigious to publish in foreign journals, and the consequent lowering of the quality of papers sent to and published in the existing Indian journals formed a vicious circle, leading to the present unsatisfactory situation.

The publication in foreign journals of the major part of the work done in India today is having a deleterious effect on Indian science. Relegating the refereeing of our best scientific work leads to loss of judgement and self-confidence. This process has sapped the inner resources of Indian scientists and, among other things, has led them to follow blindly fashions set elsewhere in choosing fields of work.

All this has caused much unrest among active scientists in India and led quite recently to a united attempt to find a solution. *Pramana* (which in Sanskrit means a source of valid knowledge, a standard, etc.) is the outcome of a nationwide effort by Indian physicists to create a vehicle for their best efforts in physics. The publication in it of good papers received from abroad can only add to its strength, and is most heartily welcomed. ...

S. RAMASESHAN

*R. S. Nadgauda, V. A. Parasharami and A. F. Mascarenhas reply:*

We appreciate the comments made by V. Siddhartha on our work on bamboo. Our response to the specific comments that pertain to our paper is as follows:

(i) The work was carried out entirely at NCL. It was by a coincidence that one of us (R.S.N.) was at Wye College in the UK in connection with the ALIS programme supported by the British Council during 10 September 1989 to 10 December 1989. The manuscript of this paper was being finalized at the time R.S.N. was in Wye College. The Wye College scientists gave suggestions about the improvement of the manuscript. The acknowledgement was a standard courtesy extended to them. Interestingly, this acknowledgement has been misinterpreted only by *The Times* of London, and all other leading international newspapers and journals, such as *The New York Times*, *Guardian*, *Japan Times*, *Newsweek* and *New Scientist*, carried no such misunderstanding.

(ii) We appreciate the concern expressed by Siddhartha concerning the patenting of our work. We would like to emphasize that we belong to a laboratory that is extremely patent-conscious. During 1989 alone it has filed 31 national/international patents, which we dare say is the highest number coming from any single research laboratory or a unit in India today. We are filing patents for both formulation and process with the help of professional advice from the CSIR Patent Unit. We have given nothing by way of vital information in the paper which could pose difficulties in patent filing.

(iii) As regards the advisability of publishing papers in an Indian journal and raising the standards of Indian journals,

we personally do not want to express a view. However, we wish to emphasize once again that we belong to a laboratory which believes that (a) science is universal, (b) choice of journal for publication is a fundamental right of the investigator, and (c) potential world-class breakthroughs should be published in world-class journals, which provide the toughest scrutiny of the claims.

(iv) As regards the publicity that this work has received, we are simply overwhelmed. We wish to re-emphasize that we did not give any press release or hand-outs to any newspaper in India or abroad immediately after the publication of our paper. We simply treated it as a simple scientific paper. The fact of the matter is that the paper was published on 22 March in *Nature*, and the same issue also carried a 'News and views' article. It was picked up by *The New York Times* on 22 March, *The Times* of London on 23 March, *Bangkok Times* and *Japan Times* on 24 March, and international magazines (*Newsweek*, *New Scientist*, etc.) and news agencies around the world in the following weeks. We must add that the first Indian newspaper to pick it up was *Maharashtra Herald*, which published a report on 24 March. They picked it up from a teleprinter message that was based on the *New York Times* report and not because of a hand-out given by us. We as a team were interviewed by them on their own initiative and this report was published on 25 March. We thought this should be clarified since there is a feeling in a section of the press that the news was given to foreign agencies first and also because Siddhartha makes a point about press hand-outs.

## The bamboo plant, Indian journals and Government orders

*P. Balaram*

The report on precocious flowering of bamboo in tissue culture by Nadgauda, Parasharami and Mascarenhas has attracted considerable attention and indeed appears to constitute a major advance in the area of plant breeding.

While most reaction has been laudatory, V. Siddhartha's letter in the adjoining columns raises important issues regarding the publication of research, particularly that with potential for commercial application. He also raises the

spectre of unfair treatment of Indian findings in the Western press, bringing to the fore the perennial bogey of racism. Some of his concerns, like the charge of biased analysis in the popular press, can be dismissed without much

ado. After all, how often is the popular press in any country completely free from providing a local slant to any discovery? Have we not all read our own newspapers on superconductivity, hot and cold fusion and cancer cures? Have not Indian discoveries followed one another in blinding succession in these highly visible areas? The 'News and views' article in the same issue of *Nature* by David Hanke of Cambridge University does much to dispel Siddhartha's charge of biased reporting. It is indeed this scholarly assessment by Hanke which places the Indian research in proper perspective and gives the Pune group due credit for their work.

Siddhartha's concern that Indian work should first be published in our own journals has been voiced before, but deserves serious consideration in the present context. What is unfortunate is that he has raised the spectre of Government orders (the GO's so beloved of our bureaucracy) to compel Indian scientists to publish results of Government-supported research (almost all research in our country) in local journals. Would the NCL work on bamboo have attracted the same attention, so quickly, if published in *Current Science*? Would we (as editors) have recognized the importance of the paper and highlighted it in our News columns?

The answer, of course, is, probably not. So the course chosen by the Pune authors is a fair one and it is to their credit that their paper has been published in a highly respected journal.

Should something be done to change the state of affairs of Indian journals? Undoubtedly, the answer is, yes, but the improvement of the content and credibility of our journals is not something that can be accomplished overnight. Would Government edicts on publishing practices help? Past experience tells us that Government fiat are rarely successful, even in more pressing matters. Interference with the basic freedom of the scientific community is unlikely to meet with quiet compliance. Coercion is also unlikely to improve the quality of our scientific output. An insular approach hardly seems the path to the twenty-first century. Patriotism should not be based on paranoia.

Siddhartha's letter addresses the important issue of whether results with definite commercial importance should be protected by patents before publication. It is in the interests of individuals and institutions to do so, but in most places moribund procedures often tempt the less pragmatic among us to take the easy course of publication. The Pune work, the public reaction it has generated, and Siddhartha's letter remind us

that science has become an increasingly complex affair. It would be counter-productive to meet contemporary challenges by espousing a scientific 'Monroe doctrine' as suggested by Siddhartha. Rather, it is incumbent on the Indian scientific community to improve the quality of our journals so as to make them appropriate places in which to publish [important] results. It is also imperative that Indian results must generate a rational, balanced assessment from Indian critics. Only then will we need to look Westward for approbation less often. The absence of peer groups of sufficient size in most disciplines is a serious hindrance. More distressing is the increasing absence of intellectually sound, honest judgements of science and the growing tendency to perpetuate mediocrity at all levels of our scientific establishments. India's community of scientists has many problems to address. Siddhartha's letter raises some of these and hints of solutions, which, although Draconian, may very well sound attractive to Delhi. If acted upon, it would be yet another case of throwing the baby out with the bathwater.

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### *Three science administrators give their personal views:*

Regarding the paper published by Mascarenhas and his colleagues on bamboo I have the following comments: (i) It will certainly be highly desirable to publish important papers of Indian scientists in Indian journals. However, this cannot be enforced. On the other hand, leading Indian scientists would have to be persuaded to publish their full-length publications only in Indian journals while they may send short communications of their work anywhere. (ii) The outstanding piece of scientific work carried out by Mascarenhas' group at NCL has received recognition in India itself only after the popular press in the UK and the USA first highlighted it. NCL, which has received a major grant from the Department of Biotechnology (DBT) for setting up a pilot plant for tissue culture-based

woody plants (including bamboos), should greatly benefit from the breakthrough in speeding up the process of bamboo breeding. We wish the NCL and its scientists all success.

S. RAMACHANDRAN

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I share Siddhartha's views almost completely. I do believe that there is urgent need for our scientific community to draw up and strictly apply (enforce?) a 'code of conduct' of publishing papers first in our own scientific journals.

I also fully share Siddhartha's concerns regarding our scientific community's total failure to protect the patenting aspect of scientific discoveries/inventions/potential inventions prior to publication. Through the National Research and Development Council's (NRDC) workshops on patents and technology transfer in different parts of the country, N. K. Sharma, Managing Director, NRDC, and I have been trying to sensitize scientists in CSIR laboratories, Indian Institutes of Technology and even in-house R&D units of public and private industry to this vital aspect. But the pressure to publish is deeply ingrained in our scientists. Consequently sensitivity to the fact that, when they are working on applied research and engineering development-oriented projects, the commercial dimen-